Hæmorrhage following tonsillotomy / by J. Walker Downie.

HÆMORRHAGE FOLLOWING TONSILLOTOMY.

The following case, illustrating a possible, though fortunately a rare accident, is, I think, worthy of being put on record:—

When but a lad, the patient, Kenneth M'I., now 34 years of age, had what from his description seems to have been an acute tonsillitis going on to suppuration, and for the relief of which the doctor then in attendance on him lanced his tonsil. From that time on, the condition of his throat has been a source of almost constant annoyance. Two years ago he consulted me, when I noted in my case book, "both tonsils somewhat enlarged; chronic follicular tonsillitis," and that I had recommended abscission. This he declined to have performed, and in lieu of the radical cure I prescribed painting with sol. of perchloride of iron and with tincture of iodine alternately, combined with the internal administration of the tincture of steel. From that time I saw nothing of him till the 5th November last. He called in the evening, and, having made himself known to me by recalling his previous visit, said that he still complained of the disagreeable sensation on swallowing—a sensation of a something remaining in the throat still to be swallowed—with a frequently recurring stifled feeling in breathing, and that he had determined to have the operation performed that I before recommended to him.

His occupation is that of a police constable, and during the two years which have elapsed since he first called on me he had attended at the Throat Department of one of the Hospitals, near which he was stationed when on duty. There the physician had twice attempted abscission, failing to relieve him however.

Both tonsils being fixed in the usual way by fingers of assistant, I removed a small slice from the right by means of Physick's tonsillotome, as modified by Dr Morell Mackenzie, and from the left, a projecting piece of tonsillar tissue about the size of a horse bean, by means of the tonsil sickle. This was followed by the use of the tanno-gallic acid solution (similar to the gargle of the London Throat Hospital Pharmacopœia), sipped slowly by the patient.

There was perhaps a little more blood lost than is usual after such an operation, but by keeping patient constantly sipping at the gargle, at the end of 15 minutes it seemed entirely checked. I then prescribed a mixture containing 15 min. doses of the tincture of perchloride of iron, to be continued for a time, and he left well pleased to think that in all probability he was freed from his tormentor.

This was about 8 P.M. on the 5th November. At 2 A.M. I was called, the words of the messenger being "to come at once and see M'I., as he was bleeding to death." On arrival at patient's house, I found him in bed supported on his elbow, with a chamber-pot at the bedside fully a fourth part filled with blood. He had not, however, the appearance of a man who had lost a *large* quantity of blood. He was not at all excited, though friends around him were, and his pulse was 90, rather of a bounding character, and readily compressed. In explanation of matters I was told the following:—Shortly after leaving my house, and while on his way home, he felt an inclination to clear his throat frequently, and suddenly while doing so he got sick and vomited two or three times. This over, he felt well again, and continued on his way home, where he arrived within ten minutes. On clearing his throat and expectorating he found that all trace of blood had disappeared. This would be close on 9 P.M. He continued free from annoyance, apart from the slight pain consequent on tonsillotomy, till about midnight, when before retiring for the night he went to stool. His bowels being in a constipated condition he strained rather severely, and while doing so he felt a trickling at right side of throat necessitating frequent clearing. On coming to the light he discovered that his expectoration appeared to be nearly pure blood, and this continued—spitting about half-an-ounce every three minutes—till I was called at 2 A.M.

On examining carefully, after mopping out with a large pad of absorbent cotton fixed to a pharyngeal probe, blood seemed to collect rapidly at lower part of posterior wall of pharynx, and on expiration the quantity became visibly greater, and he required to expectorate. After repeated and careful mopping of the raw surfaces of the tonsils, no distinct bleeding point could be detected. Under these circumstances I felt sure that the application of a strong astringent would put matters right, and that very quickly; so after again mopping thoroughly, I applied, by means of the probe with absorbent cotton, the strong liqr. ferri. perchlor. freely to both cut surfaces, and gave him a ʒj. dose of liqr. ergot, and waited the result.

Saliva collected in the mouth, and on expectorating this was seen to be freely mixed with blood. At the end of fifteen minutes I repeated the application, later on repeating the ergot. Altogether, he had four doses of ergot (each ʒj.), and the strong perchloride applied five times up till 3.30 A.M. The second application seemed

to be followed by some benefit, as occasionally his expectoration was clear, then it became tinged with blood, and again became bright red.

At this stage I determined to make trial of, if possible, a stronger styptic, and with this end in view procured a ℥iv. bottle of Hazeline—the active principle distilled from the bark of *Hamamelis Virginica*—then much lauded in our journals as a powerful styptic (smart hæmorrhage in case of cancer of tonsil quickly arrested, *Brit. Med. Jour.*, 31st October 1885, etc.) This I at once began to administer in the prescribed dose, 30 minims, in a little water, and repeated it regularly, neither applying nor administering anything else, at intervals of from 10 to 15 minutes for one hour and a half (giving 10 doses in all), without being able to detect the slightest benefit. The bleeding was still going on, I might say as profusely as ever, for every three or four minutes—despite my expressed desire that he should disturb his throat as little as possible—he expectorated close on a tablespoonful, the greater part of which was bright red blood.

There being little evidence of improvement, notwithstanding the various methods and remedies adopted, I now determined to call assistance, thinking that by such help the bleeding point, if hæmorrhage due to such, and not to general oozing, might be accurately determined, and torsion, acupressure, or the thermo-cautère applied. Consequently, about 5.30 A.M., I called on Dr Knox, surgeon to the Royal Infirmary, who kindly accompanied me to the case. For purposes of examination the patient was again seated in bed, in which position he at once complained of feeling faint, and while we were in the act of mopping out the fauces the patient suddenly vomited about a pint of dark red fluid, which relieved a sense of fulness he had over the gastric region. The fauces were then examined, and no trace of blood could be detected. He cleared his throat cautiously as directed, and the expectoration had but the faintest tinge of red. He was then laid down, and no more blood appeared during the few minutes we remained at his bedside together; so after directing an attendant to sit by him, and to feed him with chips of ice, we left, I with a distinct feeling of relief. At 9 A.M. I again visited him, and found that hæmorrhage had returned to a slight degree shortly after we left him, and had continued. I gave him 20 minims of tincture of perchloride of iron, and directed the constant sucking of ice to be persevered with. At 12 noon I again saw him, and bleeding then appeared as bad as at 2 A.M. While in the act of mopping out his fauces, preparatory to swabbing with perchloride of iron, he vomited violently, the contents of his stomach thus discharged almost completely filling a two-pint basin. The gush with which this was discharged, together with its bright colour, for a moment startled me, and I then determined to again call assistance. Dr Knox was engaged at some distance, but Dr Patterson, surgeon to the

Western Infirmary, was fortunately at hand, and he very kindly at once came to my assistance. The patient was caused to sit on a chair at his bedside, but he at once felt sick and faint, and vomited about half a pint of red fluid. He was then laid back on bed, and by the aid of a good light, and after cleaning parts with sponge on stick, Dr Patterson thought he detected seat of hæmorrhage, at the lower part of right tonsil in the substance of the tonsil.

Before attempting to ligature the carotid, which now seemed the right thing to do, Dr Patterson determined to apply the actual cautery. This he did to the suspected point, and also to the rest of the cut surface of the right tonsil, the tongue being kept down by spatula, the cheek protected by the bent handle of a spoon. The patient reclined on his elbow, and bore the application without a murmur, and the hæmorrhage was instantly arrested. The subsequent treatment consisted in patient lying perfectly still, with strict injunctions not to speak, a chip of ice constantly in the mouth, and 15 minims of tincture of steel in water every 15 minutes. From the moment of the operation on there was not a drop of blood lost. Next day the iron was continued at much longer intervals; he had beef tea and port wine, by the aid of which he rapidly gained strength, and on the fourth day was able to get up and change his room. By the end of a fortnight he was well and strong; the throat irritation had entirely disappeared, and he then left for his paternal home in the Highlands to recruit.

That the accident which here occurred is rare may be conceded, when a throat specialist of such extensive experience as Dr Morell Mackenzie, in his *Manual of Diseases of the Throat and Nose*, says under the head of operative treatment for enlarged tonsils, that he has only met with ONE such. His words are, "As regards hæmorrhage following excision of the tonsils, I have only once met with a case in which the bleeding appeared actually to endanger life; and this was before I had discovered the means of arresting tonsillar hæmorrhage, which will be presently described. The experience of nearly all writers points to the rarity of any serious hæmorrhage; but Velpeau has reported four cases in which the internal carotid artery was laid open, whilst a portion of the tonsil was being cut away with a bistoury, and a few years ago Mr M'Carthy successfully tied the common carotid artery at the London Hospital in the case of a patient suffering from continuous hæmorrhage after excision of a tonsil. In the great majority of cases the bleeding soon ceases spontaneously, and it is only necessary to make the patient gargle and wash the throat with cold water for a few minutes. . . . . In extreme cases, when the internal carotid has been laid open, the common carotid must be ligatured."

Before making any remarks on the subject, I should like shortly to refer to the few reported cases which I have traced for the most part by the aid of *Neale's Digest*.

I. And first, in an article entitled "Arresting Hæmorrhage after Resection of the Tonsils," in the *Gazette des Hôpitaux* for 1857, M. Nélaton reports the case of a lad whose tonsil he removed with very little loss of blood at the time, but more than forty hours afterwards profuse hæmorrhage occurred. On examination, after a time, hæmorrhage had ceased, but a small clot adhered to one of the tonsils, on the removal of which bleeding would doubtless have recurred. M. Nélaton cautioned the lad against moving his pharyngeal muscles, which is almost irresistible after this operation, and which frequently is the means of detaching coagula. This caution was well observed, and the bleeding did not return. Troublesome hæmorrhage from this cause, M. Nélaton says, is very rare, he having known of only three other examples. If the hæmorrhage, he states, had returned in this case, he would have applied the perchloride of iron.

II. The next case is one fully reported in the *Lancet* and *Medical Times and Gazette* for 1859, where Mr Stanley performed the operation of ligature of the common carotid artery on account of hæmorrhage following *puncture* of an inflamed tonsil.

The patient, a delicate-looking man, aged 24, subject to attacks of tonsillitis for years past, was admitted on a Monday with history of having, on the previous Friday, had a puncture made in his left tonsil by a surgeon, and that successive attacks of hæmorrhage had since occurred. At the time of the incision (which he considered relieved him), the loss of blood was very slight, and he was able to walk home. All went on well till the Monday night when the bleeding recurred, and on his admission he considered he had lost a pint of blood. Solid nitrate of silver was applied to the part, with the effect of apparently arresting the bleeding. Early in the morning, however, another hæmorrhage took place, when strong silver nitrate solution was employed. Between 10 A.M. and 2 P.M. he had lost about a pint and a half of florid blood. A consultation was then held, when it was decided to try the application of ice, and should bleeding still continue, to apply a ligature to the common carotid. For the next twenty-four hours the loss of blood was very trifling, but at the end of that time a fresh hæmorrhage occurred, and Mr Stanley decided to at once resort to the operation which he then performed, securing the vessel by a ligature of Glasgow twine about three-quarters of an inch below the bifurcation. Following the operation there were no untoward symptoms, the hæmorrhage did not recur; the ligature fell on the fourteenth day, and in concluding his remarks at this time the house-surgeon says, "there does not appear to have been any cerebral symptoms of any kind except sleeplessness one night," which was referred to anxiety on the part of the patient to get to his home. This was on the 2nd December; on the 21st patient complained of headache, sickness and vomiting; he became irritable,

sullen, and peevish. On the 24th he was seized with right hemiplegia, became insensible, and died in the evening. The condition of the brain, as seen at the autopsy, is first described, and then the condition of the tonsil. The only vessel given off to the tonsil was the tonsillar branch, the internal jugular was sound, and the internal carotid had not been injured. The remains of an abscess were found close to the tonsil.

III. The third case is one of hæmorrhage from the tonsil following *incision*, also reported in the *Medical Times and Gazette* for 1859, under the care of Mr, now Sir Henry Thompson.

The patient, a woman aged 35, had been suffering from acute tonsillitis, and two days previous to her admission to the Marylebone Infirmary a surgeon had punctured one tonsil, and on the following day its fellow, in the hope of letting out pus. Little, if any, was evacuated, but there was very free bleeding from both. There had been but little bleeding from that immediately following second incision, till late in the evening of the day on which she was admitted, when bleeding occurred. This continued with intermissions for an hour and a half, by which time the house-surgeon deemed it necessary to summon Mr Thompson. On his arrival patient was pale and almost pulseless. With his finger he examined and distinctly felt a small opening, as if from an incision in right tonsil, and from which blood was flowing freely. The bleeding had not been a continuous oozing, but had been almost suspended at intervals, especially when patient became faint. Mr Thompson at once made ready to place a ligature on the carotid, and while instruments were being got ready he determined, "though without much hope of being successful," to apply perchloride of iron. He carefully mopped the part dry by means of lint wrapped on left forefinger, and then applied the perchloride solution with a glass brush to the incision. After a few such applications the bleeding entirely stopped. There was no further return, and the woman ultimately made a complete recovery.

IV. The next two cases are reported in the *Lancet* for 1870, vol. ii., by Dr Wharton P. Hood, both cases of *excision* of the tonsil, followed by alarming hæmorrhage.

In his first case—hypertrophied left tonsil in a gentleman—Dr Hood had considerable difficulty in excising it, the obstruction to the passage of the bistoury being due to the presence of a small calculus. Hæmorrhage lasted for several hours, notwithstanding the application of a variety of styptics—nitrate of silver, ice, perchloride of iron, etc. He was beginning to feel rather uncomfortable as to the result, when the patient suddenly felt sick, and vomited large quantities of partially digested food and coagulated blood. This completely arrested the hæmorrhage, which did not again appear.

V. In his second case, both tonsils were excised at 1 P.M.: slight bleeding continued till 3 P.M., when, after taking some food, it had increased alarmingly. Styptics were applied without controlling the hæmorrhage, and recollecting the beneficial effect of vomiting in this previous case, Dr Hood administered an emetic of a scruple of zinc sulphate. After the stomach had been thus emptied, and the retching had passed off, an examination of the throat showed that all bleeding had stopped.

VI. Amongst the "Foreign Gleanings" in the *Lancet* for 1870, vol. ii., there is mention of a case in which Billroth removed the left tonsil of an hysterical lady. In doing so, he pulled the organ energetically towards the mesial line, so as to secure a complete section. By this traction a fold of the pharyngeal mucous membrane was drawn out and cut with the tonsil. The bleeding was fearful, and the Professor considered that some large branch of the pharyngeal artery contained in the fold had been divided. The patient would not allow of the pressure of the finger within the mouth, so that compression was used on the carotid, and with success.

VII. The last case I shall refer to is one where, for hæmorrhage following tonsillotomy, the left common carotid had to be tied. (*Schmidt's Jahr.*, Band clxxxvi., 1880). Abscission of hypertrophied left tonsil in a woman had been performed in usual manner. Hæmorrhage after operation was not very great, but it did not cease after gargling with cold water—rather tended to increase. After application of lunar caustic and perchloride of iron it stopped for an hour, then recommenced, and was more profuse than before. Bladders of ice were laid on the neck, with ice to suck, which, for a time, diminished the hæmorrhage, but again it returned, and more violently. Patient's strength was failing, and three hours after tonsillotomy, the common carotid was tied with carbolized silk, and immediately afterwards the bleeding from the mouth stopped. Recovery was slow. There were no signs of hæmophilia in patient or her family, and Dr Lidén, whose case it was, thought that an abnormal ramification of the vessels was the cause of the hæmorrhage.

This complication, then, of an otherwise very simple, and in many cases very necessary operation is, as may be inferred from the small number of cases published in our journals, and from records of the experience of specialists on this point, a rare one. I thus do not think it would be out of place to inquire particularly into the cause or causes of such a complication, that we may learn how best to avoid it, and how most effectually to treat it when it does arise.

When making inquiries as to the cause, we must first ascertain the possible sources of such an hæmorrhage; and here I would

express my firm conviction that, in the operation of abscission of the tonsil, as long as we cut—with bistoury or with guillotine—on the inner side of the line of the faucial pillars, it is beyond the bounds of possibility to injure the internal carotid artery, however abnormal its cause may be. This is important, as the very thought of the close proximity of the vessel to the tonsil is a terror to many when called on to operate.

Of the cases quoted, where such an injury was likely (Cases II. and III.), where the tonsils were *in*cised, the incision in all probability going a good way outside the line of the pillars, no such injury occurred, as was proved in Stanley's case on post-mortem examination, and in Thompson's case, by the mode of cure, which was not in keeping with such an hypothesis.

Of the other vessels in the immediate neighbourhood, the ascending pharyngeal artery, which lies between the internal carotid and the pharynx, is the only one which might possibly be damaged, and this only, I think, in unwarrantably free incisions into the tonsil, never in cases of abscission pure and simple. It might, again, be due to the hæmorrhagic diathesis. In none of the cases quoted, and certainly not in my case, was there any reason to suspect that the patient was the subject of such. In Case I. certainly not; in Cases II. and III. there were in each *two* wounds, whilst in each bleeding occurred from *one* only—a fact almost conclusive against the theory of such a diathesis. In Cases IV. and V. the method of arrest is against the idea of hæmophilia being the cause. In Case VI. the source is apparent, and in Case VII. Dr Lidén distinctly states that there was no history, personal nor family, of hæmophilia.

In cases where abscission of the tonsil is called for, we have that gland hypertrophied to a marked extent, usually the result of frequently recurring attacks of inflammation of the substance or of the follicles of that organ. During the acute stages of the inflammation the hyperæmia is very distinct; and this leads on to a true hypertrophy, in which, as shown by Virchow, the gland is not only increased in volume, but increased by a multiplication of all its constituent tissues and follicles. In the stage of hyperæmia the vessels are necessarily increased in diameter; and in order to nourish the resulting hypertrophied gland, the vessels remain permanently enlarged. To start with, the tonsillar branch (from internal carotid) may be abnormally large; but its importance, and therefore its calibre, is added to by the enlargement of the organ which it supplies with blood: the greater the increase in the size of the organ, the greater must be the blood supply; and to this end, and in the same proportion, must the calibre of the artery be increased. This more than usually large vessel, then, embedded in the firm substance of the tonsil, may be unable to contract sufficiently after division, and thus may admit of considerable hæmorrhage.

So far, then, as regards the tonsil itself, and if the guillotine be used, the cut surface of the tonsil *should* be the only possible seat of hæmorrhage. If, however, the bistoury be employed, we introduce a new element of danger. The incision may not be confined to the tonsil, but one or other of the pillars may be scratched or cut, leading to free hæmorrhage, as in Billroth's Case (VI.); or should the bistoury not be probe-pointed, the mucous membrane of the posterior wall of the pharynx may be incised, resulting in troublesome bleeding. Thus to the list of sources may be added those two, which sources I should be inclined to term "extra-tonsillar," in contradistinction to the possible sources of hæmorrhage from the tonsil itself.

Having thus enumerated the more important of the possible sources of hæmorrhage, we next come to inquire how best this complication may be avoided; and if we are careful to make the cut internal to the line of the pillars, and to use such an instrument that we cannot injure the pillars or the posterior wall of the pharynx, we then know that any hæmorrhage which may follow is from the cut surface of the tonsil, and, if excessive, must be due to the increase in size of the tonsillar artery, or to incomplete division of that vessel, as when a slice is taken from one side. Those conditions are best fulfilled by employing the guillotine, and preferably that form recommended by Dr Morell Mackenzie. The objection to Fahnestock's, apart from its being of more complex mechanism, is that in cases where one or other or both pillars are unduly adherent to the tonsil, as the latter is dragged towards the middle line by the fork of the guillotine, the former may be injured by the cutting edge, and thus cause the accident we so ardently wish to avoid.

The dangers of the bistoury are, I think, well illustrated by Billroth's case; and we have also the four cases mentioned in the quotation from Mackenzie's work as having been reported by Velpeau, where "the internal carotid artery was laid open, whilst a portion of the tonsil was being cut away with a bistoury."

At first in my case I feared the hæmorrhage might be due, although I observed nothing of the sort at time of operation, to injury of the posterior pillar, or to scratching of posterior pharyngeal wall on the left side—the side from which tongue-like projection was removed from tonsil with bistoury; but, as was subsequently seen, the hæmorrhage was from the substance of the right tonsil, portion of which had been removed by use of the guillotine. Dr Knox and I, when we saw patient together, were prepared to apply the thermo-cautery; but while examining the part, patient felt sick and vomited, and on subsequent examination no trace of hæmorrhage could be found,—a similar result, though in my case but temporary, to what occurred in Dr Hood's two cases (IV. and V.), where it had the effect of permanently arresting it.

Following the removal of the desired portion of the hyper-

trophied tonsil, sipping cold water, or better, the tanno-gallic acid gargle of the London Throat Hospital Pharmacopœia, slowly sipped, is sufficient to quickly check any bleeding which is present in ordinary cases. The latter can be relied on to check even comparatively smart hæmorrhage. Should this fail, however, the part should be well swabbed with strong perchloride of iron solution,—accompanied, possibly, with its administration internally at *short* intervals,—and should even this be without effect in checking it, I personally should now never dream of trying other styptics, but should at once, in those very exceptional cases, have resort to the actual cautery.

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